

The instrument is extremely delicate and care must be taken not to blow the breath upon it while making a test, and the transpiration of the hand will give a decided reaction. Leaves attached to the plant may be tested both indoors and outdoors. It is believed that this instrument is free from most of the faults ascribed by F. Darwin to the horn hygrometer devised by him, and is quite as accurate and sensitive.

THE LYGODIUM AT HOME

BY FREDERICK H. BLODGETT

In Middlesex County, New Jersey, the climbing fern [*Lygodium palmatum* (Bernh.) Swz.] occurs in considerable abundance. The several localities are quite similar in general conditions, and a description of one will serve for an average of all.

The most accessible spot where it is found abundantly is a few miles south of New Brunswick, in the edge of the sandy area known as "the burnt woods." This is a tract of low hills and shallow hollows covered to a large extent with various scrub oaks and laurel. Many of the hollows contain water, either as nearly stagnant ponds, or as bogs of sphagnum and other aquatic plants. It is in one of these sphagnum bogs that the *Lygodium* grows.

Swamp maples and other water-loving trees surround the bog, giving place to the lower forms as the edge of the peat is reached, so that the surface of the sphagnum is nearly free from shade during the greater part of the day. Near the west end of the bog there are three colonies of *Lygodium*, a small one at the southwest, another at the northwest, and the third at the apex of a triangle, nearly equilateral, formed by the three. The fern grows among and entwines the low shrubbery and stout herbaceous plants forming the border of the sphagnum area of the swamp.

The largest colony is that in the northwest corner of the swamp. Here, on the 22nd of last December, the stems of golden-

rod and similar plants were closely entwined by the coils of the fern for nearly four feet from the ground. The fruiting pinnules were very abundant and formed nearly half the length of the fronds. Six or more fronds were often twined about the same stem, forming a loosely coiled rope. The pinnules of such masses would make the diameter of the whole reach three or four inches—a dense cluster of fine brownish lobes, contrasting with the brighter green of the less dissected and fewer sterile pinnules lower on the stem. Following the slender fronds downward, the dark brown rootstocks are found covered with about an inch of moss and leaf-mould, among the roots of the plants which support the fronds. The rootstocks, which usually bear only a few, from one to three, fronds, are often branched, throwing off one branch at a time, and they persist for a number of years, so that a length of a foot or more is not rare.

While the plants appear to require abundant moisture, they are not common in the sphagnum of the swamp, but are confined quite strictly to the growth of stout herbaceous plants and low shrubs along the bog margin, or on islands of similar growth in the midst of the sphagnum.

The large colony just described covers about a square rod at the edge of the bog, but extends through the undergrowth for a considerable distance from the open swamp. Along the sides of a drainage ditch it is quite luxuriant but does not equal the more exposed plants. Here the soil has only a thin layer of moss and leaf-mould upon it, the rootstocks being more directly in contact with the wet sand below. In some portions of the swamp area there are clay beds, but the *Lygodium* has not been observed in their immediate vicinity.

The sterile pinnules of the climbing fern were almost grass-green on December 22nd, but the fertile ones were turning brown. Nearly all other foliage had been killed and browned by the severe frosts, so that the color of the fern was in striking contrast to its surroundings. But conspicuous as its color was, it was not easily seen until close at hand, owing to the mass of dead sedge stalks, of golden-rods and briars in the midst of which the plants are located.